

ASBESTOS ABATEMENT WORK PLAN

LeeFort Terrace
1-60 LeeFort Terrace, Salem, MA 01970



Prepared for:

Callahan Construction
80 1st Street
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Prepared By:

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A. INTRODUCTION

This Work Plan has been prepared for the Asbestos Abatement of identified asbestos containing material within the LeeFort Terrace project located at 1-60 LeeFort Terrace, Salem, MA.

The scope of work on this project includes the removal of asbestos containing material (or asbestos containing waste material) to be impacted during upcoming renovations including, but not limited to:

- Floor Tile and Mastics
- Pipe Insulation
- Grout & Bedding Mortar/Glue Daub
- Exterior Caulking (Windows)
- Sink Basin Undercoating
- Black adhesive on concrete walls
- Joint compound/Gypsum Wallboard

Asbestos Regulations will be followed along with all applicable rules and laws as determined by the Commonwealth of Massachusetts DEP, DLS and Federal Guidelines regulating the safe removal, handling, packaging, transporting and disposal of asbestos containing materials.

B. ABATEMENT CONTRACTOR

The ADEP Group, Inc. (ADEP) will be performing all the abatement work at the LeeFort Terrace project and will follow all rules, regulations, and guidelines pertaining to all abatement work. ADEP's asbestos contractor license is AC000868.

C. WORK PROCEDURES

Project will be conducted under wet engineering controls utilizing decontamination units (clean room, shower, equipment room) at each work area. All work performed by ADEP will follow rules and regulations per EPA and OSHA regulations, NIOSH recommendations, Massachusetts Department of Environmental Protection (DEP) requirements, Massachusetts Department of Labor Standards (DLS) regulations, and any other applicable Federal, Commonwealth and local government regulations and guidelines.

The following requirements shall be applicable for all abatement:

- ADEP, will prepare areas by protecting critical barriers with two sheet plastic barriers and by sealing cracks leading out of work area with duct tape. Traditional work methods will be facilitated for all material removed. Cleaning materials, encapsulant and/or fire stop foam will be readily available. Impermeable containers such as metal fiber drums lined with 6 mil-poly will be accessible for waste ACM materials.
- Work will be performed in accordance with Federal, State, and Local Regulations.
- Work area will be isolated from the general public.
- Mobilize with licensed abatement workers and licensed supervisors.
- All waste shall be labeled as asbestos waste prior to removal from the work area.
- Air Clearances of the work area shall be conducted by the Owner's consultant.
- Disposable protective clothing shall be disposed as asbestos waste.

- The three-chamber decontamination unit (including clean room, dirty room, and shower), will be attached to the work areas exiting containments.
- Negative pressure by means of HEPA 2000 cfm will be utilized to trap and control fiber migration.
- Warning signs will be posted around the work areas. ADEP GROUP will use amended water to reduce fiber release.
- All equipment utilized in the work operation shall be cleaned of visible dust and debris by HEPA-vacuuming and/or wet wiping prior to removal from the work area. Wet wipes shall be managed as ACM waste.
- At the conclusion of the work, the work site shall be inspected for debris. The work area shall be recleaned until no such debris is found.
- Work areas visual clearances must be performed by the Owner's Consultant/project monitor by coordinating efforts to perform the visual and air clearance sample collection. Air clearance samples may be TEM or PCM and will be fully handled by the Owner's Consultant. ADEP will work with consultant throughout project for accurate project timeline.
- For activities that disturb asbestos, no visible emissions shall be discharged to the outside air during the collection, processing, packaging, or transporting of any asbestos.

ADEP will demarcate the regulated area in any manner that minimizes the number of persons within the area and prevents access by unauthorized personnel and protects persons outside the area from exposure to airborne particulates. Asbestos Warning Signage will be used to define the regulated work area. Additionally, proper asbestos warning signs will be prominently displayed at all points of access to the regulated area. The signs will bear the following information:

**DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORY AND PROTECTIVE CLOTHING ARE
REQUIRED IN THIS AREA**

ADEP will provide all employees with appropriate respirators. Visitors (certified) will only be permitted to enter the Work Area provided they are qualified and medically approved to wear a respirator and enter areas where exposure is possible. ADEP employees will not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in regulated areas.

It is ADEP's responsibility to inform other building/site occupants (construction personnel) of the following:

1. Nature of the work,
2. Regulated work area requirements, and
3. Measures taken to protect employees.

The following requirements shall be applicable for abatement of site-specific items:

Floor Tile & Mastics

ADEP will remove any covering over ACM, as applicable, within negative pressure enclosures. Materials that has ACM or suspect debris adhered to it shall be packaged and disposed of as asbestos waste. The ACM will be removed by hand scrapers and will not be allowed to dry out during removal and packaging. As removed, the ACM will be simultaneously packed while still wet into corrugated boxes or burlap bags and then sealed shut. The necks of the disposal bags will be twisted, bent over and sealed with duct tape. Caution will be used to protect the bags and wrapping from tears and rips due to sharp edges.

For concrete substrate with ACM mastic, ADEP will remove mastic/adhesives per project specifications utilizing machines. ADEP shall adequately wash all floor substrates and other building surfaces following abatement and clearance testing using an appropriate cleaner and water as needed to clean residual film and minimize residual odor. ADEP will take care not to damage remaining finishes and substrates and will not use excessive water. ADEP shall package waste as asbestos waste.

Pipe and Pipe Fitting Insulation:

ADEP shall utilize glovebags to remove pipe and pipe fitting insulation. Glovebag removal will be conducted within negative pressure enclosures. Glovebags will be used in strict accordance with 29 CFR 1926.1101 (OSHA) and other applicable regulations. ADEP shall install polyethylene sheeting drop cloths beneath pipe areas to be worked. After the negative pressure enclosure is constructed, ADEP shall install glovebags in accordance with manufacturer's instructions and regulatory requirements.

Once completely sealed around the pipe to be worked, ADEP will inspect glovebag for adequate seals. ADEP will spray amended water to saturate material to substrate and ensure ACM remains adequately wetted. ADEP will cut bands holding insulation, remove, and hand place in a disposal bag or bottom of glovebag as applicable. ADEP will provide dedicated water supply to each glovebag during the entire removal and cleaning operation within the glovebag. ADEP shall take care not to drop any material or allow material or water to fall out of the glovebag or to fall to the floor. ADEP shall then remove any residue on pipe or fitting with stiff-bristle-nylon hand brush. Once all cleaning is complete, ADEP will twist the glovebag with the debris at the bottom of the glovebag and seal with duct tape. ADEP will then remove the glovebag, bend the top over, and then reseal the neck with duct tape.

Grout & Bedding Mortar/Glue Daub/Black Adhesive/Gypsum Wallboard/Joint Compound

ADEP shall spray amended water to sufficiently saturate material and ensure ACM remains wet for the duration of removal. ADEP will remove ACM from walls and ceilings properly package as ACM waste. Wetted material will be removed using care to not create dust and immediately hand place the ACM and debris in appropriate disposal bags. To avoid visible emissions ADEP shall minimize dropping or falling material as much as feasible. ADEP will remove asbestos containing material in a gradual manner, with continuous application of the amended water in such a manner that no asbestos material is disturbed prior to being adequately wetted.

ADEP shall fully remove and properly package all comingled material adhered to the ACM as asbestos waste. At no time shall asbestos material and debris be allowed to accumulate on work area surfaces or become dry. ADEP will HEPA vacuum and wet clean all surfaces in the work area until surfaces are completely free of visible debris and dust. All layers of Grout/Mortar, Glue Daubs, Black Adhesive, and GWB material will be fully removed from the wood, brick or block wall substrate.

ADEP will provide pre-packaging with corrugated boxes or suitable material as necessary to prevent tearing of waste bags. Areas adjacent to damaged walls and ceilings will be cleaned of all visible suspect ACM debris.

Exterior Caulking (Windows)

ADEP shall construct a regulated area around the windows extending the area below the portions of building (windows, doors, vents) containing caulking to properly cordon off the area. No personnel will be allowed within the regulated area during our abatement procedures. ADEP shall properly seal critical barriers and construct a remote decontamination unit. ADEP shall utilize hand tools and ensure caulking is maintained in a non-friable state for the duration of abatement. ADEP shall removal all ACM caulking from substrates and, if feasible, will clean frames of any ACM waste for clean disposal of frames. HEPA vacuums. ADEP will not render material friable.

Sink Basin Undercoating

ADEP will handle the removal of sinks containing ACM undercoating as whole components with caution to avoid disturbing the ACM coating. The sinks will be carefully wrapped with two layers of polyethylene (poly) and properly labeled for appropriate disposal.

D. Negative Pressure System

This system ensures that any airborne asbestos fibers remain in the controlled space. To calculate the number of air machines needed for a negative pressure containment, several factors need to be considered:

Size of the Containment Area: ADEP will determine the volume of the space that needs to be contained. Measure the length, width, and height of the area and calculate the cubic footage. **(Each unit is approximately 5,000 Cubic Feet.)**

Air Changes per Hour (ACH) Requirement: Establish the desired air changes per hour based on the specific needs of the containment. This value represents the number of times the total air volume within the space needs to be exchanged with fresh air in an hour **(minimum 4 changes per hour).**

Air Machine's Airflow Capacity: Determine the airflow capacity of a **single air machine**, typically measured in cubic feet per minute (CFM). Most of ADEPs air machines run at **2,000 CFM.**

Conversion: Convert the ACH requirement into the appropriate air changes per minute (ACM) value. Divide the ACH requirement by 60 to get the number of air changes per minute. **(0.067 ACM)**

Calculate the Total Airflow: Multiply the volume of the containment area (in cubic feet) by the ACM value to determine the total airflow required (in cubic feet per minute). **(5,000 x 0.067 = 335 CFM total air flow required)**

Determine the Number of Air Machines: Divide the total airflow required by the airflow capacity of a single air machine (CFM). Round up the result to the nearest whole number to determine the minimum number of air machines needed. If the calculation results in a fraction, it is generally recommended to err on the side of caution and round up to ensure adequate containment. **(335/2,000 = 0.17 Air Machines Required) 1 air machine will provide more than enough negative pressure in each unit.**

(Cubic Area) x (Required Air Changes Per Minute) = Total Air Flow Required
(Total Air Flow Required) / (Single Air Machines Flow) = Minimum Number of Air Machines Required

E. HYGIENE FACILITIES

The Contractor will establish a three-chamber decontamination facility, which shall also be utilized for

all work pertaining to that area. ADEP will ensure employees enter and exit the regulated work area through the Decontamination Facility (DF). This DF shall be used throughout work until all material is removed. The DF will be equipped with water (hot and cold or warm), soap, disposable towels, and other items necessary for the proper containment and control of particulates/dust/fibers.

F. HOUSEKEEPING

Asbestos waste, scrap, debris, bags, containers, equipment, and contaminated clothing consigned for disposal will be collected and disposed of in sealed, labeled, impermeable bags or other approved impermeable containers and not left to accumulate on site at end of shift.

**DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD**

ADEP will affix warning labels to all asbestos containers. Labels will be printed in large, bold letters on a contrasting background and used in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200). All labels will contain a warning statement against breathing fibers and contain the wording above.

G. ACCESS AND NOTIFICATION OF OTHER WORKERS AT MULTI-EMPLOYER WORKSITE

All personnel entering the regulated area will be required to read the Work Plan before they are permitted to enter any regulated work area at the site. Access to the regulated work areas will only be permitted to personnel with proper trained and certified licenses (MA trained certified) and state officials only.

No other trades will be permitted into the regulated work area without proper training (MA trained certified) in accordance with all Federal and State regulations.

H. PROJECT MONITORING

Personal Monitoring

ADEP Group, will have a "competent person" (as defined by OSHA) oversee exposure monitoring to accurately determine the airborne concentrations to which employees may be exposed. This monitoring shall be conducted in accordance with the OSHA Construction Standard (29 CFR 1926.1101). An adequate number of workers performing removal activities will be monitored by the contractors to effectively monitor worker exposure for specific work activities. Workers will be using low-flow personal air pumps to collect all air samples that will be worn within the workers' "breathing zone". These pumps will be calibrated prior to use in accordance with manufacturer's instructions. Samples will be analyzed by properly qualified and licensed personnel.

Negative Exposure Assessments (NEA)

ADEP Group conducts periodic personal monitoring of our abatement activities to ensure no employee is exposed to fiber concentrations exceeding 0.1 fibers per cubic centimeter over an 8-hour work shift, to calculate the time-weighted average during specific abatement activities. This historical data is

available upon request.

ADEP Group, will ensure that no employee is exposed to airborne concentrations exceeding 0.1 fibers per cubic centimeter (*f/cc*) as an 8-hour time-weighted average (TWA). Additionally, ADEP Group, will

ensure that no employee is exposed to airborne fiber concentrations exceeding 1.0 *f/cc* as averaged over a 30 minute, the OSHA Excursion Limit, PEL.

Final Air Clearance (Performed by a third-party hygienist provided by the owner)

At that time, the samples will be analyzed by either Transmission Electron Microscopy (TEM) or Phase Contrast Microscopy (PCM), whichever is required by the regulations. If all samples fall below regulated levels for safe demolition activity ADEP will be allowed to tear-down the containment. Finally, following containment tear-down, Owner's Hygienist will complete a Post Visual Checklist to assure and document that all areas are asbestos free and ready for any demolition activity.

H. SIGNATURES AND REVISIONS

Asbestos Abatement Plan prepared by:

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